

PMC-ND
(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**



RECIPIENT: [Clemson University](#)

STATE: [SC](#)

PROJECT TITLE : [Integrated Process Optimization for Biochemical Conversion](#)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001689	DE-EE0008255	GFO-0008255-001	GO8255

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

A9 Information gathering, analysis, and dissemination	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
B3.6 Small-scale research and development, laboratory operations, and pilot projects	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to [Clemson University](#) to develop analytical tools for biorefineries that would enable the identification of an optimal integrated process design ensuring reliable, cost effective, sustainable, robust and continuous feeding of biomass feedstocks.

The proposed project involves the design, evaluation, and pilot testing of a reactor feeding system based on computer models for quantifying the effect that physical characteristics of biomass have on the performance of biorefinery processes and equipment. The types of activities associated with the proposed project include data analysis, computer modeling, and laboratory scale research and development culminating in a validation of analytical results at the [Idaho National Laboratory \(INL\) Process Demonstration Unit \(PDU\)](#). Data analysis, computer modeling, software development, and material characterization tests would be conducted within dedicated research facilities at the Industrial and Civil Engineering Departments of [Clemson University \(Clemson, SC\)](#), including the Computational Geomechanics Laboratory. Additional analytical and computer based work would occur at subrecipient [Open Cloud Institute \(San Antonio, TX\)](#). The accuracy of the predictive flowability model would be determined based on historical experimental data made available by [Idaho National Laboratory](#) and [Oak Ridge National Laboratory \(ORNL\)](#).

Pilot scale validation of the model using actual equipment would be conducted during the third year of the proposed project at INL's PDU (Idaho Falls, ID), which is equipped with a full-size, fully-integrated feedstock preprocessing system. Demonstration activities would take place over 2 weeks (approximately 60-80 operating hours) during which time the proposed project would process at least 1 dry ton of biomass/hour. The types and approximate quantities of commercially available feedstocks that would be used are as follows: corn stover (154 tons), miscanthus (88 tons), and switchgrass (66 tons). Since the proposed validation runs using INL's equipment are small scale and temporary, there would be minimal emissions and other waste incurred as a result of project activities. All materials used and produced at this location would be managed via standard methods in accordance with local, state and federal environmental regulations. Project participants would follow established health and safety protocols and procedures for biomass processing.

No change in the use, mission or operation of existing facilities would arise out of project efforts at any location. No modifications to or new permits/authorizations would be required to complete the proposed activities. Only existing equipment would be used, and no decommissioning of equipment would be necessary at the conclusion of the

proposed project.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410 (2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Bioenergy Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 1/18/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Casey Strickland

NEPA Compliance Officer

Date: 1/19/2018

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- ☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- ☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature:

Field Office Manager

Date: